

Claims

1. An antenna arrangement of a mobile station, comprising
 - a planar antenna including a ground plane and a planar radiator element which is disposed substantially parallel to the ground plane, and

- 5 - a printed wired board which is located substantially parallel to said ground plane and said radiator element, wherein the ground plane covers a first area on the printed wired board and the radiator element covers a second area on the printed wired board,

characterized in that

- 10 - the arrangement comprises a layer of low reluctance material which layer is substantially parallel to the printed wired board and covers a third area on the printed wired board, and

- 15 - said layer of low reluctance material is so located that the third area on the printed wired board is at least in part outside said first and second areas on the printed wired board.

2. An antenna arrangement according to claim 1, **characterized** in that the low reluctance material covers a high intensity RF current area on the printed wired board for reducing the RF current intensity on said area.

- 20 3. An antenna arrangement according to claim 1, **characterized** in that the low reluctance material is flexible ferrite sheet.

4. An antenna arrangement according to claim 1, wherein the mobile station includes a display unit, **characterized** in that the layer of low reluctance material is located between the display unit and the printed wired board.

- 25 5. An antenna arrangement according to claim 4, **characterized** in that the display unit comprises a light guide or element with similar function, and said layer of low reluctance material is attached to said light guide or element.

6. An antenna arrangement according to claim 1, **characterized** in that said low reluctance material is attached to the ground plane.

- 30 7. An antenna arrangement according to claim 1, **characterized** in that there is an air gap between the radiator element and the ground plane.

8. An antenna arrangement according to claim 1, **characterized** in that the ground plane is formed of a conducting layer of the printed wired board.

9. An antenna arrangement according to claim 8, **characterized** in that said the ground plane is formed of the conductive layer of the printed wired board which is nearest to the radiator element.

10. An antenna arrangement according to claim 1, **characterized** in that the planar antenna is located at the end of the printed wired board, and the low reluctance material is located at a distance from said end of the printed wired board.

11. An antenna arrangement according to claim 1, **characterized** in that said printed wired board connects said planar antenna to other electronics of the mobile station.

12. A mobile station, comprising:

- a planar antenna including a ground plane and a planar radiator element which is disposed substantially parallel to the ground plane, and

- a printed wired board which is substantially parallel to said ground plane and said radiator element, wherein the ground plane covers a first area on the printed wired board and the radiator element covers a second area on the printed wired board,

characterized in that

- the mobile station further comprises a layer of low reluctance material which layer is substantially parallel to the printed wired board and covers a third area on the printed wired board, and

- said layer of low reluctance material is so located that the third area on the printed wired board is at least in part outside said first and second areas of the printed wired board.

13. An antenna arrangement according to claim 12, **characterized** in that the low reluctance material covers a high intensity RF current area on the printed wired board for reducing the RF current intensity on said area.

14. A mobile station according to claim 12, **characterized** in that the low reluctance material is flexible sheet of ferromagnetic material.

15. A mobile station according to claim 12, wherein the mobile station includes a display unit, **characterized** in that the layer of low reluctance material is located between the display unit and the printed wired board.
- 5 16. A mobile station according to claim 12, **characterized** in that the planar antenna is located at the end of the printed wired board, and the low reluctance material is located at a distance from said end of the printed wired board.
17. A mobile station according to claim 12, **characterized** in that said printed wired board connects said planar antenna to other electronics of the mobile station.